

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (original): An apparatus comprising:

a threshold detector having a current comparator to determine if an input signal exceeds a threshold.

Claim 2 (original): The apparatus of claim 1, wherein the threshold detector comprises a differential amplifier stage having an input stage comprising a first transistor and a second transistor having collectors and emitters coupled together.

Claim 3 (original): The apparatus of claim 2, wherein the differential amplifier stage has a reference stage having a third transistor and a fourth transistor, the third and fourth transistors having emitters coupled to the emitters of the first and second transistors.

Claim 4 (original): The apparatus of claim 3, wherein the reference stage is coupled to receive a voltage reference from a half differential amplifier stage.

Claim 5 (original): The apparatus of claim 4, further comprising a current source to bias the reference stage and a limiting amplifier coupled to the threshold detector.

Claim 6 (original): The apparatus of claim 1, wherein the threshold detector is coupled to detect a loss of a received signal input into a limiting amplifier.

Claim 7 (original): The apparatus of claim 6, wherein the received signal is derived from a high frequency optical signal.

Claim 8 (original): The apparatus of claim 6, wherein the threshold detector is coupled to detect an absolute value of a differential stage output of the limiting amplifier.

Claim 9 (original): The apparatus of claim 2, further comprising cross-coupled transistors coupled between the input stage and a resistor load to provide a feedback gain to the input stage.

Claim 10 (original): An apparatus comprising:
a first Schmitt trigger having an output coupled to an input of a second Schmitt trigger to generate hysteresis.

Claim 11 (original): The apparatus of claim 10, wherein the first Schmitt trigger includes a first differential amplifier having an inverting input coupled to receive an input signal and a non-inverting input coupled to receive an output of the second Schmitt trigger.

Claim 12 (original): The apparatus of claim 11, wherein the second Schmitt trigger comprises a second differential amplifier having an inverting input coupled to receive an output of the first differential amplifier.

Claim 13 (original): The apparatus of claim 10, further comprising a first voltage divider coupled to the output of the first Schmitt trigger.

Claim 14 (original): The apparatus of claim 13, wherein the input of the second Schmitt trigger is coupled to a node between a first resistor and a second resistor of the first voltage divider.

Claim 15 (original): The apparatus of claim 10, wherein the output of the first Schmitt trigger is a fixed percentage of an input signal of the first Schmitt trigger.

Claim 16 (original): The apparatus of claim 10, wherein the output of the first Schmitt trigger is based upon a threshold level for a loss of received signal of an optical communication system.

Claim 17 (original): A method comprising:

determining an absolute value of a differential input; and

comparing the absolute value to a reference signal using a current comparator.

Claim 18 (original): The method of claim 17, further comprising providing a common mode direct current feedback signal to a current source.

Claim 19 (original): The method of claim 17, further comprising providing an output of the current comparator that is indicative of a loss of received signal of an optical communication system.

Claim 20 (original): The method of claim 17, further comprising receiving the differential input from a limiting amplifier.

Claim 21 (original): A system comprising:

a threshold detector having a current comparator to determine if a signal representing an incoming optical signal exceeds a threshold; and

an optical fiber coupled to provide the incoming optical signal.

Claim 22 (original): The system of claim 21, further comprising a limiting amplifier coupled between the optical fiber and the threshold detector.

Claim 23 (original): The system of claim 22, wherein the threshold detector is coupled to detect an absolute value of a differential stage output of the limiting amplifier.

Claim 24 (original): The system of claim 21, wherein the threshold detector comprises an input stage and a reference stage, the input stage and the reference stage comprising a plurality of transistors having emitters coupled together.

Claim 25 (original): The system of claim 24, further comprising a current source to bias the reference stage and a limiting amplifier coupled to the threshold detector.

Claim 26 (original): An apparatus comprising:
an output buffer amplifier having positive feedback to boost gain.

Claim 27 (original): The apparatus of claim 26, wherein the output buffer amplifier includes cross-coupled transistors to provide the positive feedback.

Claim 28 (original): The apparatus of claim 26, wherein the output buffer amplifier comprises a level shifter.

Claim 29 (original): The apparatus of claim 26, wherein the output buffer amplifier includes a pair of Darlington circuits.

Claim 30 (new): An apparatus comprising:

an absolute value detector to receive a differential input;
a cascode current comparator coupled to an output of the absolute value detector; and
a latch coupled to the cascode current comparator.

Claim 31 (new): The apparatus of claim 30, further comprising a current source to provide a source current to the absolute value detector.

Claim 32 (new): The apparatus of claim 31, further comprising a reference circuit coupled to receive the source current and generate a tracking reference signal to the cascode current comparator.

Claim 33 (new): The apparatus of claim 32, further comprising a common mode feedback circuit coupled to receive the output of the absolute value detector and the tracking reference signal and to generate a feedback signal to be provided to the current source.

Claim 34 (new): The apparatus of claim 30, further comprising a differential current comparator coupled between the cascode current comparator and the latch.

Claim 35 (new): The apparatus of claim 30, further comprising a plurality of buffers coupled to the latch to generate a differential output representative of a loss of received signal of the differential input.

Claim 36 (new): The apparatus of claim 35, wherein the plurality of buffers each comprises a Darlington circuit.

Claim 37 (new): The apparatus of claim 32, wherein the reference circuit comprises a plurality of Schmitt triggers.

Claim 38 (new): The apparatus of claim 37, wherein the plurality of Schmitt triggers comprise a first Schmitt trigger having an output coupled to an input of a second Schmitt trigger.